UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (US EPA)
REGION 6, 1445 ROSS AVENUE, DALLAS, TX 75202

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT (EPCRA)
SECTION 313 INSPECTION REPORT

Report date: June 23, 2014
Revised: July 23, 2014

I. ESTABLISHMENT COVERED BY THIS INSPECTION REPORT

This inspection reports covers only the Georgia-Pacific Crossett Pulp and Paper Operations which reported as a separate establishment. The other two Georgia-Pacific establishments (the Chemical Operations and the Plywood/Stud Mill) will be covered in separate inspection reports.

II. FACILITY (ESTABLISHMENT) INSPECTED

Inspection date: March 19, 2014

Name & address:

Georgia-Pacific Crossett Paper Operations
100 Mill Supply Road
Crossett, AR 71635
870-567-8000

Mailing address:

Georgia-Pacific Crossett Paper Operations
PO Box 3333
Crossett, AR 71635

Parent:

Koch Industries, Inc.
DUNS: 006944334

III. GEORGIA-PACIFIC CROSSETT, ARKANSAS COMPLEX

The Georgia-Pacific Crossett, Arkansas Complex has consisted of the three establishments shown below over the period of the inspections

EXHIBIT B

Pulp and Paper Operations establishment (2008 to 2012, five years) (this report)

PULP AND PAPER OPERATIONS

NAICS code	Primary	Description
322110	Yes	Pulp mills
322121	No	Paper (except newsprint) mills
322130	No	Paperboard mills

Chemicals Operations establishment (2008 to 2012, five years)

CHEMICALS OPERATIONS

NAICS code	Primary	Description
325211	Yes	Plastics material and resin manufacturing
325199	No	All other basic organic chemical manufacturing
325191	No	Gum and wood chemical manufacturing

Plywood/Stud Mill establishment (2008 to 2011, four years) (operations at this establishment were idled in October 2011) (Attachment 1)

PLYWOOD/STUD MILL

NAICS code	Primary	Description
321212	Yes	Softwood veneer and plywood manufacturing
321113	No	Sawmills

The reporting by year for each establishment is shown in the table below:

REPORTING YEARS FOR EACH ESTABLISHMENT

Establishment	2012	2011	2010	2009	2008
Pulp and Paper Operations	Reported	Reported	Reported	Reported	Reported
Chemicals Operations	Reported	Reported	Reported	Reported	Reported
Plywood/Stud Mill	**Note 1**	Reported	Reported	Reported	Reported

Note 1: The Plywood/Stud Mill idled operations in October 2011 (Attachment 1).

IV. SEND REPLY TO

The reply to the inspection report should be sent to:

James W. Cutbirth
Environmental Affairs Manager
Georgia-Pacific Crossett Paper Operations
PO Box 3333
Crossett, AR 71635
870-567-8144
Email: james.cutbirth@gapac.com

The senior manager at the facility is:

Gary W. Kaiser
Vice President, Manufacturing
Plant Manager
Georgia-Pacific Crossett Paper Operations
PO Box 3333
Crossett, AR 71635

V. INTRODUCTION

EPCRA (Emergency Planning and Community Right to Know Act) § 313 is also referred to as the TRI (Toxic Release Inventory). TRI is the actual name of the database which houses the information collected pursuant to EPCRA § 313.

This report documents the March 19, 2014, EPCRA § 313 inspection of only the Georgia-Pacific Crossett Pulp and Paper Operations located in Crossett, Arkansas. The inspection was to determine compliance with EPCRA § 313 reporting requirements. The inspection covered the reporting years 2008 to 2012.

The Arkansas Department of Emergency Management was notified prior to the inspection as a courtesy (Attachment 2). No state has primary enforcement under EPCRA § 313.

The following information applies to the Pulp and Paper Operations establishment:

TRI identification number: 71635GRGPCPAPER
NAICS code: 322110, pulp mills (primary)
322121, paper (except newsprint) mills
322130 paperboard mills
DUNS numbers: 009020777, 132076480 (shown on the 2012 Form R, Attachment 17)
Lat: 33.141395 (FRS, no collection method shown) (Attachment 3)
Lon: -91.97395 (FRS, no collection method shown) (Attachment 3)
Web site: www.gp.com
Facility/parent state of incorporation: Delaware (Attachment 4)

VI. BUSINESS RELATED INFORMATION

The Crossett paper mill makes a variety of tissue, towel, paper and paperboard products (Attachment 5). Among the brands manufactured are Quilted Northern bath tissue, Angel Soft bath tissue and Sparkle paper towels.

The facility operates its own pulping process prior to the paper and paperboard making operations.

Information from the establishment's web site is shown in Attachments 5 and 6.

Information from the 2010 Arkansas Manufacturers Register is shown in Attachment 7.

Georgia-Pacific owns approximately 10,000 acres on which the Pulp and Paper Operations, the Chemical Operations, the Plywood/Stud Mill and the wastewater treatment plant are located.

VII. ENVIRONMENTAL JUSTICE

The Georgia-Pacific Pulp and Paper Operations meets the criteria for being a "Potential Environmental Justice Area of Concern". Details are shown in Attachment 8.

VIII. PRE AND POST INSPECTION CONTACTS

Date	Type of contact	Person	Comments
2-28-2014	Phone to	James Cutbirth & Richard Freeman	Discussed upcoming inspection
2-28-2014	Email & USPS	James Cutbirth	Notification of the upcoming inspection (Attachment 9)
3-14-2014	Email to	Richard Freeman	Requested directions
3-19-2014	Phone to	James Cutbirth	Asked for a copy of Ms. Sarah Ross' list of questions and information requested. Cutbirth stated that the process flow diagram was not Confidential Business Information (CBI)
3-20-2014	In person	James Cutbirth	Delivered additional information
3-21-2014	In person	James Cutbirth	Delivered additional information
3-27-2014	Email to	James Cutbirth	Questions on hydrogen sulfide (Attachment 10).
3-28-2014	Email to	James Cutbirth	Questions on miscellaneous chemicals (Attachment 11).
3-28-2014	Email to	James Cutbirth	Questions on C -12 flow chart (Attachment 12).
3-31-2014	Email from	James Cutbirth	Answers on hydrogen sulfide questions (Attachment 10).
3-31-2014	Email to	James Cutbirth	Questions on C-2 flow chart (Attachment 10).
3-31-2014	Email from	James Cutbirth	Answer to questions on C-2 flow chart (Attachment 10).
4-1-2014	Phone to	James Cutbirth	Questions about where H2S is manufactured.
4-1-2014	Email to	James Cutbirth	Question on non-condensable gases (Attachment 13).
4-1-2014	Email from	James Cutbirth	Request for copy of inspection report and answers to questions (Attachment 14)
4-2-2014	Email to	James Cutbirth	Questions on line 1 washer and decker (Attachment 15)

PRE AND POST INSPECTION CONTACTS CONTINUED

Date	Type of contact	Person	Comments
4-3-2014	Letter to	James Cutbirth	Request for MSDS's (Attachment 18).
4-3-2014	Email from	James Cutbirth	Answers on line 1 washer and decker (Attachment 15).
4-7-2014	Email to	James Cutbirth	Questions on 2012 lead and lead compounds (CBI Folder 2, tab 13).
4-7-2014	Email & 8 at. from	James Cutbirth	Answers to questions poised during the inspection (CBI Folder 2, tabs 4, 5, 6, 7, and 8 and Attachment 41).
4-7-2014	Email to	James Cutbirth	Questioned if the information sent earlier in the day CBI (Attachment 20).
4-7-2014	Email to	James Cutbirth	Questions 2012 chlorine dioxide usage (CBI Folder 2, tab 12).
4-7-2014	Email to	James Cutbirth	Inspector's error on question about 2011 Form R for barium compounds (Attachment 21)
4-7-2014	Email from	James Cutbirth	Reply on barium compounds (Attachment 21).
4-8-2014	Email to	James Cutbirth	Requested information for Dr. Wakeland on NAICS codes (Attachment 19)
4-8-2014	Email to	Wakeland to James Cutbirth	Questions on the basis of estimate for releases (Attachment 22).
4-8-2014	Email from	James Cutbirth to Wakeland	Reply to basis of estimate questions (Attachment 22).
4-9-2014	Email to	Wakeland to James Cutbirth	Additional comments on the basis of estimate (Attachment 22).
4-9-2014	Email to	James Cutbirth	Question on the products of combustion (Attachment 23)
4-9-2014	Email to	James Cutbirth	Question on hydrogen sulfide (CBI Folder 2, tab 14).
4-9-2014	Email to	James Cutbirth	Question on burning used (waste) oil (Attachment 24).
4-10-2014	Email to	James Cutbirth	Question, where H2S is manufactured (Attachment 25).
4-11-2014	Email from	James Cutbirth	Answers to the burning of used oil (Attachment 24).
4-11-2014	Email from	James Cutbirth	Answers to questions on chlorine dioxide (CBI Folder 2, tab 12).

PRE AND POST INSPECTION CONTACTS CONTINUED

Date	Type of contact	Person	Comments
4-11-2014	Email to	James Cutbirth	Question on Saline River Water Plant and single hog fuel pile (Attachment 26).
4-11-2014	Email from	James Cutbirth to Wakeland	Reply on the basis of estimate (Attachment 22).
4-15-2014	Email from	James Cutbirth	Answers to questions on Saline River Plant and hog fuel pile (Attachment 26).
4-16-2014	Email to	James Cutbirth	Question on acetaldehyde (CBI Folder 2, tab 11).
4-17-2014	Email from	James Cutbirth	MSDS's are in the mail (Attachment 27).
4-17-2014	Email from	James Cutbirth	Reply to Dr. Wakeland's question on NAICS codes (Attachment 19).
4-21-2014	Email from	James Cutbirth	Reply on products of combustion (Attachment 23).
4-22-2014	Email to	James Cutbirth	Request methods of determining TRS releases (Attachment 27).
4-22-2014	Email to	James Cutbirth	Questions on lead compounds (Attachment 28).
4-25-2014	Email from	James Cutbirth	Reply to questions on lead compounds (Attachment 28).
4-25-2014	Email from	James Cutbirth	Reply to question on acetaldehyde (CBI Folder, tab 11).
5-5-2014	Email from	James Cutbirth	Answers to questions on hydrogen sulfide, TRS and where H2S is manufactured (CBI Folder 2, tab 15).
5-20-2014	Email to	James Cutbirth	Questions on C -12 flow chart (Attachment 12).
5-21-2014	Email from	James Cutbirth	Replied to question on C-12 flow chart (Attachment 12)
5-29-2014	Phone from	Rebecca Blankenship	James Cutbirth busy. Will return phone call later.
5-30-2014	Email to	James Cutbirth	Request for information (Attachment 29).
5-30-2014	Email to	James Cutbirth	Request for information (Attachment 30).

PRE AND POST INSPECTION CONTACTS CONTINUED

Date	Type of contact	Person	Comments
6-4-2014	Email to	James Cutbirth from Morton Wakeland	Conference call and comments on CBI (confidential business information).
6-6-2014	Email to	James Cutbirth	Conference call schedule, 9:30 am, 6-11,2014
6-9-2014	Email to	James Cutbirth from Mort Wakeland	Confirmed 6-11-2014 meeting and asked for information prior to the meeting (Attachment 62).
6-10-2014	Email from	James Cutbirth	Conference call notice
6-10-2014	Email from	James Cutbirth	Conference call notice
6-10-2014	Email to	James Cutbirth	Three more questions (Attachment 31).
6-10-2014	Email from	James Cutbirth	Information for conference call and answers to questions (Attachments 32, 33 and CBI Folder 2, tab 17).
6-11-2014	Email to	James Cutbirth from Morton Wakeland	Confirmed receipt of information for conference call and answers to questions.
6-11-2014	Phone to	James Cutbirth	Requested conference call phone number.
6-11-2014	Conference call	James Cutbirth and others	Discussion on information contained in spreadsheets. GP people on conference call; James Cutbirth, Richard Freeman, Mayes Starke, Mark Ruppel, Aimee Risher
6-11-2014	Email to	James Cutbirth from Morton Wakeland	Thank everyone for conference call input.
6-20-2014	Email from	James Cutbirth	Reply to information requested during the 6-11-2014 conference call. Reply was addressed to Wakeland and Stranne. (Attachment 64)
7-2-2014	Voice mail from	James Cutbirth	Wants to discuss up dating flow chart.

Date	Type of contact	Person	Comments
7-2-2014	Email from	James Cutbirth	Needs clarification on flow chart changes (Attachment 65).
7-3-2014	Email to	James Cutbirth	Please phone on Monday (Attachment 65).
7-3-2014	Email to	James Cutbirth	Questions for discussion on Monday.(Attachment 65).
7-11-2014	Email from	Richard Freeman	Provided revised flow charts (Attachment 38).
7-11-2014	Email to	Richard Freeman	Acknowledged receipt of revised flow charts (Attachment 38).
7-11-2014	Email from	James Cutbirth	Suggested changes to the draft inspection report (Attachment 66).
7-15-2014	Email from	James Cutbirth	Request for copy of Attachment 8 to the inspection report (Attachment 67).
7-22-2014	Email to	Morton Wakeland to James Cutbirth	Provided copy of Attachment 8 (Attachment 67).
7-22-2014	Email from	James Cutbirth to Morton Wakeland	Acknowledged receipt of Attachment 8 (Attachment 67).

IX. INSPECTOR

Lawrence V. Stranne, P.E.
EPCRA 313 Inspector
US EPA Region 6
1445 Ross Avenue
Dallas, TX 75202
214-665-7337
Fax: 214-665-6655
E-mail: stranne.lawrence@epa.gov

X. PERSONS INTERVIEWED

(Opening and closing conferences)
Gary W. Kaiser
Vice President, Manufacturing
Plant Manager
Georgia-Pacific Crossett Paper Operations
PO Box 3333
Crossett, AR 71635

James W. Cutbirth
Environmental Affairs Manager
Georgia-Pacific Crossett Paper Operations
PO Box 3333
Crossett, AR 71635
870-567-8144
Email: james.cutbirth@gapac.com

Richard J. Freeman
Environmental Engineer
Georgia-Pacific Crossett Paper Operations
PO Box 3333
Crossett, AR 71635
870-567-8177
Email: rjfreema@gapac.com

Mr. Freeman was the Form R Technical Contact for 2012 reporting.

Sarah M. Ross
Georgia-Pacific Crossett Paper Operations
PO Box 3333
Crossett, AR 71635

Rachel Johnson
Georgia-Pacific Crossett Paper Operations
PO Box 3333
Crossett, AR 71635

Saul J. Furstein, P.E.
Sr. Environmental Consultant
Environmental Affairs, Technical Support
Georgia-Pacific
113 Peachtree Street, NE
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Atlanta, GA 30348-5603
404-652-5243
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(Closing conference)
John C. Bottini
Senior Counsel
Environmental Law Department
Georgia-Pacific Chemicals
133 Peachtree Street, NE
Atlanta, GA 30303-5605
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Mark Ruppel
Headquarters
Georgia-Pacific

(Conference call)
Aimee Risher
Technical Support, Headquarters
Georgia-Pacific

(Closing conference)
Scott Bailey
Environmental Manager (NACP)
Headquarters
Georgia-Pacific

(Conference call)
Mayes Starke
Technical Support, Water
Headquarters
Georgia-Pacific

An attendance listing is shown in Attachment 35.

XI. ENVIRONMENTAL CONSULTANT USED FOR TRI REPORTING

None.

XII. INSPECTION

A. OPENING CONFERENCE

After arriving at the facility at approximately 8:15 am on March 19, 2014, I presented my credentials to Mr. Kaiser and the Staff. The purpose of the inspection was explained as a determination of compliance with EPCRA § 313 toxic chemical release reporting requirements for the reporting years 2008 to 2012.

The information sheets for the following areas were given to the facility:

TRI-MEweb online reporting
EPCRA § 313 Region 6 staff
U.S. EPA Small Business Resources
Superfund, TRI, EPCRA, RMP& Oil Information Center
Chemical Safety Awareness for Industrial and Municipal Facilities

Attachment 36 is a map of the facility.

Attachment 37 is a process flow diagram for the facility collected at the time of the inspection

In an email dated July 11, 2014, Mr. Richard Freeman provided the following updated flow charts to replace the corresponding pages in Attachment 37 (Attachment 38):

Figure C-2, pulp mill
Figure C-5, causticizing area
Figure C-12, wastewater treatment

B. CONFIDENTIAL BUSINESS INFORMATION (CBI)

Some of the material collected at the time of the inspection was marked CONFIDENTIAL BUSINESS INFORMATION (CBI). The CBI information collected at the time of the inspection was printed on 8-1/2 inch by 14 inch paper and is included in CBI Folder 1. CBI collected or generated since the inspection is included in CBI Folder 2.

When the inspection report is complete both of the CBI folders will be given to the EPCRA § 313 CBI Officer, David Riley.

C. REQUEST FOR A COPY OF COMPLETED INSPECTION REPORT

In an email dated April 1, 2014, Mr. Cutbirth requested a copy of the completed inspection report (Attachment 39).

D. RATIONAL FOR THE GP COMPLEX REPORTING AS THREE SEPARATE ELSTABLISHMENTS.

The Georgia-Pacific Crossett Complex consisted of three establishment from 2008 to 2011. The Plywood/Stud Mill idled operations in October 2011 which resulted in only two establishment reporting in 2012.

The Staff explained that each of the three establishments (the Pulp and Paper Operations, the Chemicals Operations and the Plywood/Stud Mill) is in a different Division of GP. Each Division has its own chain of management and financial results. GP Management wanted the environmental reporting also separated by the three Divisions.

E. PREVIOUS RCRA (RESOURCE CONSERVATION and RECOVERY ACT INSPECTION, APRIL 10-12, 2012

The establishment's web site noted a prior RCRA (Resource Conservation and Recovery Act) inspection on April 10, 2012, (Attachment 39).

A copy of the RCRA inspection report is shown in Attachment 40.

F. STATUS OF INFORMATION REQUESTED PRIOR TO THE INSPECTION

In an email and USPS letter dated February 28, 2014, Mr. James Cutbirth was requested to provide information at the time of the inspection (Attachment 9).

All of the information was available at the time of the inspection. Additional information and corrected information was requested with an expected delivery date of April 9, 2014. The information was received as requested.

Ms. Sarah Ross took notes during the inspection and a copy of her March 20, 2014, notes related to additional information to be provided is shown in Attachment 61.

G. INFORMATION REQUESTED SUBSEQUENT TO THE INSPECTION

In a letter sent April 3, 2014, Mr. James Cutbirth was requested to supply copies of the MSDS for all products used by the facility that contained TRI chemicals (Attachment 18). In an email dated April 17, 2014, Mr. Cutbirth said that the MSDS's were in the mail (Attachment 18). The letter attached to the email contained a listing of the MSDS's that were being sent. The MSDS's were received on April 18, 2014, by FedEx. The MSDS's were placed in the file folder.

H. FACILITY OWNERSHIP INFORMATION

Georgia-Pacific has owned and operated the GP Crossett Paper Operations during the period of the inspection, reporting years 2008 to 2012 (Attachment 6).

I. FACILITY INFORMATION, EMPLOYEES AND GROSS SALES

The facility currently has approximately 1,250 employees.

Mr. Kaiser provided the following number of employees and sales (Attachment 4).

ESTABLISHMENT EMPLOYEES AND SALES

Reporting year	More or less than 50 employees	More or less than $10 million sales
2112	More than	More than
2011	More than	More than
2010	More than	More than
2009	More than	More than
2008	More than	More than

J. MONITORING / MEASUREMENT DATA COLLECTION

In his letter dated March 20, 2014, Mr. Gary Kaiser provided the following information on the collecting, monitoring and measurement data (Attachment 4 starting on page four).

> As set forth in more detail in the calculation spreadsheets that will be provided during your visit, GP's Paper and Pulp Facility utilizes many different types of data collected pursuant to regulatory monitoring/measurement requirements to calculate releases of EPCRA 313 chemicals utilized at the Facility. The following chart summarizes those regulatory monitoring/measurement requirements for which the Facility gathers monitoring or measurement data on an ongoing basis. Please note that based on our understanding of the scope of your information request, this chart does not include all ongoing monitoring or measurements that the Facility may collect for reasons other than regulatory compliance, nor does it include every monitoring or measurement that the Facility may have conducted for regulatory applicability or permitting purposes. To the extent the Facility relies on any monitoring or measurements to support its calculations of EPCRA 313 chemical releases, such data and the corresponding calculation methodologies for particular reporting years are available in the spreadsheets that will be provided during your visit.

Type of Data	ECPRA 313 Chemicals Monitored or Measured	Regulatory Requirement	Monitoring or Measurement Methodology	Activities/ Operations Covered by Data
Stack Tests	Chlorine (Cl_2)	Subpart S (Rule revisions in 2012) And §63.457	NCASI Technical Bulletin No. 520	Bleach Plant (SN-30)
	Sulfuric Acid Mist (SAM)	§19.702 and §19.901 of Regulation #19, and 40 CFR Part 52 Subpart E	EPA Test Method 8	8R Recovery Furnace (SN-26)
Leak Detection and Repair (LDAR) Monitoring Data	Non-Condensable Gases (NCG) (i.e. H_2S, Methyl Mercaptan)	MACT Standard 40 CFR 63, Subpart S – National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry	EPA Test Method 21	Air emissions from regulated LDAR components throughout the facility.
Effluent Testing	Nitrate as N Copper Zinc	NPDES Permit	EPA Method 353.2 EPA Method 200.8 EPA Method 200.8	Wastewater effluent releases
Cluster Rule Bleach Plant Effluent Testing	Chloroform	NPDES Permit	EPA Method 624	Internal Monitoring
Landfill Groundwater Monitoring	Nitrate, Sulfate, Arsenic, Barium, Chromium, Lead, Manganese, Zinc, Benzene	Arkansas Regulation 22.1204(c)(1)	EPA Guidance, ASTM Standards	Landfill

K. WASTEWATER TREATMENT

In an email dated July 11, 2014, Mr. James Cutbirth provided the following description of the wastewater treatment process (Attachment 66):

The Mill processes wastewater from Crossett Paper Operations, GP Chemical Operations, GP Plywood & Studmill Operations, and treated effluent from the City of Crossett, although currently the Plywood & Studmill Operations are idled and do not contribute wastewater to the wastewater treatment system. Wastewater from the paper machines, pulping operations, recovery & utilities, and woodyard operations is first processed through a primary clarifier to settle a large majority of settable solids. These settled solids are dewatered and the dewatered solids are sent to the sludge basin for disposal. Water then exits the primary clarifier and combines with the wastewater in the P3 sewer which includes boiler scrubber water associated with the Paper Operation power boilers, wastewater from the Plywood & Studmill Operations (when operating) and wastewater from the Chemical Plant. The combined wastewater flows directly to the ash settling basins where the waste water is again subject to further settling before flowing through the Surge Basin (for flow equalization) and on to the aeration stabilization basin (ASB) for biological treatment. Ash is settled in the ash basins and mechanically removed prior to the surge basin and aeration stabilization basin. Ash removed from the ash settling basins is placed in the sludge basin. Some heavier Paper Mill ash is mechanically removed at the mill site prior to discharge to the P3 sewer. This ash is used at the North Landfill as an approved cover material. Treated effluent from the City of Crossett treatment system joins the GP wastewater system just after the Surge Basin and prior to the aeration stabilization basin. The aeration stabilization basin reduces the organic content of the wastewater and allows for further settling of suspended solids. Treated effluent is sampled and measured at the parshall flume after the aeration basin which is regulated in the NPDES permit as Outfall 001. Treated effluent then discharges to an earthen channel that flows to a pond referred to as Mossy Lake. When not flooded, the Mossy Lake discharge is monitored as a stream monitoring station under the NPDES permit and then flows to the Ouachita River via Coffee Creek.

The mill wastewater and storm water falling in the process areas of the mill are collected in various sewers in the mill and flow by gravity to the treatment system. In addition to the normal process and non-process wastewaters collected, the mill may discharge wastewaters resulting from essential maintenance, regularly scheduled maintenance, during startup and shutdown activities, and from incidental spills and releases (whether anticipated or unanticipated) from anywhere in the permitted facility. However, these wastewaters are amenable to treatment as provided in the treatment system, and will not impact effluent limitations.

L. PROCESS WATER

Make up process water is drawn from Lake Georgia-Pacific which is north of the facility. The water is chlorinated and distributed to the Pulp and Paper Operations, the Chemicals Operations and the Plywood/Stud Mill.

In an email dated April 11, 2014, Mr. Cutbirth was asked to provide additional information on the source of the process water supply (Attachment 26). In an email dated April 15, 2014, Mr. Cutbirth provided the following reply.

> Water is pumped from the Saline River into GP Lake. From GP Lake, the water is pumped approximately seven miles to the Saline River Treatment Plant located within the utilities area of the mill. At the plant the water is treated for turbidity.

Turbidity is cloudiness or haziness of the water caused by individual particles (total suspended or dissolved solids).

M. POTABLE WATER

Potable water (drinking quality water) for the Paper and Pulp Operations is drawn from nearby company owned wells and chlorinated.

N. LANDFILLS

In an email dated June 2, 2014, Mr. Cutbirth described the facility's landfills as shown below (Attachment 64):

> We have two Non-Commercial Class 3 solid waste landfills. One is for construction and demolition debris and the other is used for primarily paper and paper related waste; it is a Sub-title D landfill. There is also one land reclamation area, referred to as the sludge basin in Figure C-12. It is located near the primary clarifier. It is used for the disposal of dewatered sludge taken from the primary clarifier and boiler ash removed from the ash settling basins.

O. RAW MATERIAL

The major raw materials are:

> Pine and hardwood logs

The major fuels are hog fuel (chipped wood waste), TFD (tire derived fuel), natural gas and oil.

P. PROCESS DESCRIPTION

A process description provided by GR is shown on the following page (Attachment 4).

GP's Crossett Consumer Products mill produces paper and paper products utilizing seven paper machines and two paper extruding machines. The paper machines include two board paper machines and five tissue/towel machines. The paper board produced is shipped in rolled form cut to width based on customer specifications. Tissue and towel converting includes the operations involved with converting large parent rolls of tissue/towel from the machines into finished product. This includes rewinding onto smaller sized rolls, folding, printing, cutting, packaging, and shipping.

The two extruding machines receive board from the board paper machine and from outside board customers and apply a polymer coating. Rolls of board are loaded onto an unwind stand before passing through a calendar stack, where they are subjected to burners which flame seal the board. An extruded poly sheet is then pressed together with the board.

Round wood and purchased chips are received at the facility by truck and rail. The logs are debarked for bark removal, fed through a chipper and then conveyed to the chip piles. The chips from the chip piles are screened prior to entering the chip silos. The removed bark is pneumatically sent to bark piles for storage and eventual used in the facility's boilers. The chips from the silos are conveyed to the Mill's thirteen batch digesters. The function of the digesters is to cook the chips using white liquor and steam from the boilers. In the digestion process, these raw materials are combined and cooked at a set pressure and temperature until the desired pulp quality is obtained. At the end of each "cook", the blow valves at the bottom of the digesters are opened, with the resulting pressure forcing the pulp mass through a blow line into one of the two blow tanks.

The blow tanks are at atmospheric pressure and the contents of the digesters enter the blow tanks tangentially at the top. When the chips hit the lower pressure in the tank, the liquor and water flash, blowing the chips apart to produce the pulp fibers. The vapors from the blow tanks are sent to the blow heat condensing system, where non-condensable gases (NCGs) are removed. The steam vapors are condensed in the accumulator. The accumulator water is sent to the stripper and returned to the washers as clean condensate. Knots (e.g. undercooked wood chips, irregularly shaped or overly thick pieces of wood, etc.) are removed with the use of vibrating knotters/screens.

The pulp is washed to remove spent cooking chemicals. The Mill has two horizontal washers. In the washers, the wash water and pulp move in counter current directions. The washed pulp is passed through screening and cleaning stages which remove debris from the stock. After screening, the pulp passes through the decker system, which thickens the pulp for storage in high density storage chests

The unbleached Kraft pulp is taken from the high density storage chests for further processing in the bleach plant. The bleaching process removes the remaining lignin and Kraft color from the unbleached pulp. Bleaching is performed in several stages using chlorine dioxide, caustic soda, oxygen, and hydrogen peroxide.

Attachments 37 and 38 are process flow diagrams for the facility collected at the time of the inspection (37) and later revised (38).

A description of the pulping process from the Wikipedia Encyclopedia is shown in Attachment 42.

Q. FINAL PRODUCTS

After manufacturing the wood pulp the Pulp and Paper Operations manufactures a variety of tissue, towel, paper and paperboard products (Attachment 5). Among the brands manufactured are Quilted Northern bath tissue, Angel Soft bath tissue and Sparkle paper towels.

Byproducts of the pulping operation are turpentine and soap (page 6 of Attachment 42).

R. ORIGINAL POSTMARK DATES OF SUBMITTED FORM R's/A's

The original postmark dates of the Form R's submitted for reporting years 2008 to 2012 were on or before the final due date with the exception of the one chemical shown below (Attachment 43):

CHEMICAL REPORTED LATE

Reporting year	Chemical	Due date	Postmark date **Note 1**	Period late
2011	Nitrate compounds	July 2, 2012	June 24, 2013	357 days

Note 1: The term postmark date includes the actual postmark dates and the certification dates for Form R/A's sent electronically through TRI-MEweb.

Nitrate compounds were reported on time for reporting year 2012 but were not reported for reporting years 2008, 2009 and 2010.

S. TRI CHEMICALS REPORTED TO THE EPA (ENVIRONMENTAL PROTECTION AGENCY

Attachment 45 is a listing showing the number of establishment that reported each chemical.

At the time of the inspection the facility provided spreadsheets for the calculation of chemical usages and releases (CBI Folder 1). The spreadsheets included some of the formulas and basic calculations used in determining the threshold usage and emission values.

In an email dated April 7, 2014, Mr. Cutbirth provided summary spreadsheets for chemical threshold usage at all three establishment (CBI Folder 2, tabs 4, 5, 6, 7and 8).

The table below shows the chemicals reported by the Paper and Pulp Operations (Attachment 45).

CHEMICALS REPORTED TO THE TRI

Chemical	2012	2011	2010	2009	2008
Acetaldehyde	Reported	Reported	Reported	Reported	Reported
Ammonia	Reported	Reported	Reported	Reported	Reported
Barium compounds	Reported	Reported	Reported	Reported	Reported
Benzo(g,h,i)perylene	Reported	Reported	Reported	Reported	Reported
Catechol	Reported	Reported	Reported	Reported	Reported
Chlorine	Reported	Reported	Reported	Reported	Reported
Chlorine dioxide	Reported	Reported	Reported	Reported	Reported
Cresol (mixed isomers)	Reported	Reported	Reported	Reported	Reported
Dioxin & dioxin like compounds	Reported	Reported	Reported	Reported	Reported
Ethylene glycol	Reported	Reported	Reported	Below threshold **NOTE 1**	Reported
Formaldehyde	Reported	Reported	Reported	Reported	Reported
Formic acid	Reported	Reported	Reported	Reported	Reported
Hydrochloric acid aerosols	Reported	Reported	Reported	Reported	Reported
Hydrogen sulfide	Reported	**Not required**	**Not required**	**Not required**	**Not required**
Lead compounds	Reported	Reported	Reported	Reported	Reported

CHEMICALS REPORTED TO TRI CONTINUED

Chemical	2012	2011	2010	2009	2008
Manganese compounds	Reported	Reported	Reported	Reported	Reported
Methanol	Reported	Reported	Reported	Reported	Reported
Nitrate compounds	Reported	Reported	**Below threshold** **NOTE 1**	**Below threshold** **NOTE 1**	**Below threshold** **NOTE 1**
Phenol	Reported	Reported	Reported	Reported	Reported
Polycyclic aromatic compounds	Reported	Reported	Reported	Reported	Reported
Sulfuric acid aerosols	**Below threshold** **NOTE 1**	**Below threshold** **NOTE 1**	**Below threshold** **NOTE 1**	**Below threshold** **NOTE 1**	Reported
Toluene	Reported	Reported	Reported	Reported	Reported
Vanadium compounds	Reported	Reported	Reported	Reported	Reported
Zinc compounds	Reported	Reported	Reported	Reported	Reported

NOTE 1: An analysis of chemical usage is shown in CBI Folder 2 tab 16.

T. CHEMICALS OF INTEREST IDENTIFIED PRIOR TO THE INSPECTION

Hydrogen Sulfide (H2S)

Hydrogen sulfide was added to the TRI chemical list via the Federal Register December 1, 1993. However, on August 22, 1994, an administrative stay of the reporting requirement was imposed. The stay was lifted effective October 1, 2011, with the first reports due July 1, 2013.

The facility utilized a model generally described in the study "Estimating H2S and Methyl Mercaptan Emissions from Wastewater Treatment Systems" for estimating H2S (hydrogen sulfide) emissions at the wastewater plant (Attachment 46). The study separately analyses emissions of hydrogen sulfide and methyl mercaptan.

In an email dated June 10, 2014, Mr. Cutbirth provided a condensed version of the slides from the above study showing only the slides that address the specific manner in which GP conducted its calculations (Attachment 33).

Mr. Furstein provided a listing of hydrogen sulfide releases from just paper and pulp mills. The Crossett Pulp and Paper Operations ranked number 4 from the top of hydrogen sulfide releasers in the Nation (Attachment 47). Shown below are the top five H2S releasers:

1. Rayonier Performance Fibers Jesup Mill, 4470 Savanna Hwy, Jesup, GA 31545
2. Georgia-Pacific Monticello LLC Sandifer Hwy, 5 Miles N of Monticello, Monticello, Mississippi 39654
3. International Paper, 100 Jensen Rd, Prattyville, Alabama 36067
4. Georgia-Pacific Plywood/Stud Mill Complex, 101 Plywood Mill Rd, Crossett, Arkansas (This is the name that the GP Pulp and Paper Operations reports under)
5. International Paper – Vicksburg Mill, 3737 Hwy 3 N, Redwood, Mississippi, 39156

Mr. Furstein provided a second listing of hydrogen sulfide releases from all industries. The Crossett Pulp and Paper Operations ranked number 6 from the top of hydrogen sulfide releases (Attachment 48). Shown below are the top five releasers:

1. Jal Gas Plant, 115 Sid Richardson Rd, Jal, New Mexico 88252
2. PCS Phosphate Co Inc., 1530 NC Hwy 306S, Aurora, North Carolina 27806
3. Rayonier Performance Fibers Jesup Mill, 4470 Savannah Hwy, Jesup, Georgia 31545
4. Georgia-Pacific Monticello LLC Sandifer Hwy, 5 Miles N of Monticello, Monticello, Mississippi 39654
5. International Paper, 100 Jensen Rd, Prattyville, Alabama 36067
6. Georgia-Pacific Plywood/Stud Mill Complex, 101 Plywood Mill Rd, Crossett, Arkansas (This is the name that the GP Pulp and Paper Operations reports under)
7. International Paper – Vicksburg Mill, 3737 Hwy 3 N, Redwood, Mississippi, 39156

Hydrogen sulfide (H2S) was manufactured (including coincidental), processed and/or otherwise used only at the Pulp and Paper Operations. The Chemicals Operations and the Plywood/Stud Mill did not have any usage of the chemical.

Information from the chemical dictionary and Wikipedia on hydrogen sulfide is shown in Attachment 49).

The 2012 Form R for hydrogen sulfide indicated the "basis of estimate" for releases shown in the table below:

METHODOLOGY FOR CALCULATING (ESTIMATING) RELEASES

RELEASE	BASIS OF ESTIMATE
5.1 Fugitive or non-point air emissions	M2 – estimate is based on periodic or random monitoring data or measurements for the EPCRA § 313 chemical
5.2 Stack or point air emissions	E1 – estimate is based on published emission factors, such as those relating release quantity to through-put or equipment type (e.g., air emission factors)
5.3 Discharges to receiving streams or water bodies	C – estimate is based on mass balance calculations, such a calculation of the amount of the EPCRA § 313chemical in streams entering and leaving process equipment
5.5.2 land treatment/application farming	C – estimate is based on mass balance calculations, such a calculation of the amount of the EPCRA § 313chemical in streams entering and leaving process equipment

In an email dated April 22, 2014, Mr. Cutbirth was asked to provide information and data on the methods used to determine H2S emissions from specific points (Attachment 27). In an email dated May 5, 2014, Mr. Cutbirth replied as follows (CBI Folder 2, tab 15).

> The calculated amounts of releases for H2S from the Lime kiln, Recovery boiler and Smelt dissolving tanks are based on NCASI H2S factors.

The 2012 Form R for hydrogen sulfide reported the releases shown below. Reporting year 2012 was the first year that hydrogen sulfide was required to be reported.

RELEASES OF HYDROGEN SULFIDE AS SHOWN ON THE 2012 FORM R

Line no.	description	Pounds released
5.1	Fugitive or non-point releases	517,048
5.2	Stack or point releases	4,632
5.3	Discharges to receiving streams of water bodies	305
5.5.2	Land treatment	1,477
7A.1a	Waste stream: waste water Waste treatment methods H123, settling or clarification H081, biological treatment with or without precipitation	
7B	Onsite energy recovery processes U01, industrial kiln U03, industrial boiler	
8.2	Quantity used for energy recovery onsite	309,899
8.6	Quantity treated onsite	283,290

The total of the values shown in the table significantly exceed the amount of hydrogen sulfide manufactured during 2012. An email dated April 9, 2014, was sent to Mr. Cutbirth asking him to explain the values (CBI Folder 2, tab 14). In an email dated May 5, 2014, Mr. Cutbirth replied as follows (CBI Folder 2, tab 14).

> The disparity in the total amount of hydrogen sulfide (H2S) manufactured in our original RY2012 calculations versus the total amount of H2S captured in Section 8 of our RY2012 Form R was caused by the double counting of controlled stack air emissions under both energy recovery (8.2) and treated on site (8.6). We have taken this opportunity to update our RY2012 calculations spreadsheet for H2S to improve and clarify our reporting. Energy recovery was eliminated as a response and only treated on site is now utilized. While energy recovery would be a correct response according to NCASI guidance, using the treated onsite category only seems a more appropriate classification in this case. When this double-counting is eliminated, the revised total for Section 8 of the Form R equals the amount manufactured. The attached revised calculation sheet for H2S now shows the manufacturing total matching the sum of the responses in section 8.

After the removal of line 8.6, quantity treated onsite, the corrected releases of hydrogen sulfide are shown below:

RELEASES OF HYDROGEN SULFIDE AS SHOWN ON THE 2012 FORM R AND REVISIONS

Line no.	description	Pounds released shown on 2012 Form R	**REVISED 6-10-2014** Pounds released **Note 1**
5.1	Fugitive or non-point releases	517,048	517,042
5.2	Stack or point releases	4,632	**29,007**
5.3	Discharges to receiving streams of water bodies	305	305
5.5.2	Land treatment	1,477	1,477
7A.1a	Waste stream: waste water Waste treatment methods H123, settling or clarification H081, biological treatment with or without precipitation		
7B	Onsite energy recovery processes U01, industrial kiln U03, industrial boiler		
8.2	Quantity used for energy recovery onsite	309,899	**0**
8.6	Quantity treated onsite	283,290	**284,587**

Note 1: In his email dated June 10, 2014, Mr. Cutbirth provided the revised information (CBI Folder 2, tab 17).

The pulping process takes place in a unit referred to as the digester. Hydrogen sulfide is coincidentally manufactured in the digester. Gases, including hydrogen sulfide, from the digester are routed to the blow tanks and then to the incinerator (thermal oxidizer) for treatment and energy recovery (Figure C-2 of Attachment 38).

In an email dated April 11, 2014, Mr. Cutbirth was asked to provide additional information on the processing of gases exiting the digesters and blow tanks (Attachment 26). Mr. Cutbirth's reply is shown below (Attachment 26):

> Upon completion of each cook, the contents of each digester are emptied (blown) to a hardwood or softwood blow tank. The gases exiting the blow tanks are routed to the NCG collection system where the non-condensable portion of these gases is ultimately burned in the Incinerator. Each of the digesters also has a small vent that is directed to the turpentine system. Emissions from this system are combined back with the other digester gases and are routed to the incinerator.

In an email dated March 27, 2014, Mr. Cutbirth was asked if the references to the kiln and the industrial boiler as hydrogen sulfide treatment equipment were correct Attachment 10). Mr. Cutbirth's March 31, 2014, reply is shown below (Attachment 10):

> The reference to U03 in the 2012 Form R for hydrogen sulfide contemplates the combustion (for energy recovery and as a form of emissions control) of hydrogen sulfide gases that occurs in the on-site incinerator equipped with waste heat boiler, which is depicted on Figure C-2 of the process flow diagrams. As a back-up to the incinerator, hydrogen sulfide emissions can be routed to the 9A Power Boiler. Both the incinerator and the 9A Boiler Power would fall within the U03 – Industrial Boiler code, as we understand the codes. Hydrogen sulfide gases are not routed to the recovery boiler for combustion.
> The reference to U01 in Section 7.b of the 2012 Form R for hydrogen sulfide appears to be in error. Although Figure C-5 does show non-condensable gases (NCGs) as an input to the lime kiln, NCGs (including hydrogen sulfide) were not burned for energy recovery in the lime kiln within the past 5 years. The piping system that would allow NCGs to be fed to the lime kiln has been blanked and/or removed.
>
> As explained above, no NCGs (including hydrogen sulfide gases) are routed to the lime kiln for incineration. The depiction of such activity in Figure C-5 is out of date. The lime kiln burner is fired with natural gas, although that fuel source is not depicted on Figure C-5. In general, the use of natural gas by equipment other than the power boilers is not depicted on process flow diagrams.
>
> As explained above, hydrogen sulfide should not be an input to the Recovery Boiler.
>
> In addition to these responses, we have also attached is a copy of a presentation that was given by Dr. Zach Emerson of NCASI and Mayes Starke of Georgia-Pacific (with whom you spoke over the telephone during your visit) at a recent NCASI conference. You requested a copy of this presentation during your visit. We can arrange for you to speak with Mayes in more detail regarding the contents of this presentation, if you would find that helpful.

In an email dated April 10, 2014, Mr. Cutbirth was asked for a listing of where hydrogen sulfide is manufactured in the pulping process (Attachment 25). In an email dated May 5, 2014, Mr. Cutbirth replied as follows (CBI Folder 2, tab 15):

> There is no direct contact evaporator at the Crossett Paper mill. The Crossett Paper mill operates a non-direct contact evaporator, which is depicted in the Section 3.1 of the TRI calculation spreadsheet for H2S as "Recovery Furnace NDCE". The sources of H2S for which we have emissions data and/or factors are set forth in Section 3.1 of the attached TRI calculations. A more detailed chart of H2S sources is pasted below.

POINTS AT WHICH YDROGEN SULFFIDE IS MANUFACTURED

Hydrogen sulfide sources	Number of each	Comments
Blow tanks (blow gases)	2	Controlled in NCG system
Accumulator (relief gases)	1	Controlled in NCG system
Brown stock Washers (line 1 washers)	1	Controlled in NCG system
Brown stock Washers (line 2 washers)	1	Controlled in NCG system
Line 1 Decker System	1	Controlled in NCG system
Line 2 Decker System	1	Vented to atm.
Weak Black Liquor (WBL) tanks*	6	Vented to atm. **(Note 1, Note 2)**
Strong Black Liquor (SBL) tanks #	5	vented to atm.
High Density Storage chests (UBP storage)	3	vented to atm.
Evaporators	6	Controlled in NCG system
Recovery Furnace NDCE	1	
Smelt Dissolving Tanks	2	
White Liquor Storage Tanks	4	Vented to atm.
Lime Kiln	1	
NCG Thermal Oxidizer	1	N/A **(Note 4)**
Turpentine System	1	Controlled in NCG system
Steam Stripper (Striper off gases)	1	Controlled in NCG system
Pre-evaporators	1	Controlled in NCG system
Concentrator	1	Controlled in NCG system
Waste Water Treatment System:		
Primary Clarifier	1	
North ASB	1	
South ASB	1	
Surge Basin	1	
Ash Basin	1	**(Note 3)**

Note 1: In his email dated June 10, 2014, Mr. Cutbirth clarified the location of the six weak black liquor storage tanks (Attachment 32). His comments are shown below:

The weak black liquor tanks accounted for within the TRI calculations are the pine and hardwood washer tanks, filtrate feed tank (controlled by Incinerator), the 12% BLT, the 17% BLT, and a Boil Out Tank. The process flow diagrams were taken from a past Title V Permit application, and thus do not necessarily track all the emission points captured in our TRI calculations. Not every tank within the Crossett facility is depicted within these PFD's. The C2 flow diagram does reflect "to black liquor storage" which would represent the hardwood weak black liquor tank, softwood weak liquor tank and the filtrate tank in the pulp mill. The C4 flow diagram reflects two weak black liquor tanks; the 17% WBL tank and the #1 WBL tank. A third WBL tank not shown on the drawing would be the Boil Out tank.

Note 2: In his email dated June 10, 2014, Mr. Cutbirth explained the type of releases reported for the six weak black liquor tanks (Attachment 32). His comments are shown below:

Of the six weak black liquor tanks identified in the TRI worksheet, only the filtrate feed tank is controlled by the thermal oxidizer. The other five weak black liquor tanks vent to the atmosphere, and thus noted as "uncontrolled" in our TRI worksheet. We characterize each of these six tanks as stack or point air emission sources, thus they are accounted for in Section 5.2 of our TRI worksheet. The Form R instructions note that storage tank emissions fall within 5.2 and thus we believe this is an appropriate characterization of the type of emission sources represented by the weak black liquor tanks.

The spreadsheet associated with Section 5.2 correctly depicts the five heavy black liquor tanks as being "uncontrolled". The "uncontrolled" tank emissions and "controlled" tank emissions are then summed together as a "sum for all the tank emissions" identified. Again, we believe our approach of characterizing these storage tank emissions within Section 5.2 of our TRI worksheet is consistent with the Form R instructions.

Note 3: In his email dated June 10, 2014, Mr. Cutbirth clarified the location of the ash basin shown under wastewater treatment (Attachment 32). His comments are shown below:

There are two points within the system where ash accumulates and is removed for disposal; at the point ash immediately exits both 9A & 10A Boilers (Figure C-11), and then the ash settling basins located just south of the primary clarifier (figure C-12). The ash

> basins depicted in C12 are the basins that we consider part of the wastewater treatment system.

Note 4: In his email dated June 10, 2014, Mr. Cutbirth clarified the meaning of the notation "N/A" (Attachment 32). His comments are shown below:

> NA is intended to mean zero emissions. The underlying calculation spreadsheet depicts zero emissions based on information obtained from NCASI Guidance.

In his email dated June 10, 2014, Mr. Cutbirth clarified the releases from the sludge basin shown on flow chart figure C-12, which is not shown in the above chart (Attachment 32). His comments are shown below:

> The H2S releases associated with the sludge basin are captured in Section 5.5.2 – Land Application of the H2S calculation worksheet, which depicts 1,477 lbs H2S released to land. This value was derived from NCASI guidance.

In his email dated June 10, 2014, Mr. Cutbirth clarified releases from the aeration and stabilization basin (Attachment 32). His comments are shown below:

> Based on the sampling and modeling exercise that we can describe in more detail during our call Wednesday, GP has estimated H2S releases of 923.1 lbs/day from the north end of the ASB and 73.25 lbs from the south end of the ASB for a total of 996.35 lbs/day.

In his email dated June 10, 2014, Mr. Cutbirth discussed hydrogen sulfide releases from the holding basin (Attachment 32). His comments are shown below:

> ADEQ classifies Mossy Lake (noted in Figure C-12) as water of the State, and thus the Crossett mill's NPDES permit does not consider Mossy Lake to be part of the Crossett mill's wastewater treatment system. Additionally, Mossy Lake serves as a drainage basin for a large footprint of land beyond Georgia Pacific's ownership. For that reason, Georgia-Pacific has not sampled or otherwise estimated releases of H2S from Mossy Lake.

In his email dated June 10, 2014, Mr. Cutbirth discussed hydrogen sulfide releases from the black liquor storage basin (Attachment 32). His comments are shown below:

> Georgia-Pacific has not sampled or otherwise estimated releases of H2S from the black liquor storage basin noted on Figure C-4. NCASI has no emission factors for black liquor ponds, and thus Georgia Pacific is not aware of a reliable means by which to estimate emissions from the black liquor storage pond.

The great majority of the fugitive air releases of hydrogen sulfide are coincidentally manufactured in the aeration and stabilization basins of the wastewater treatment plant. The hydrogen sulfide coincidentally manufactured is released to the atmosphere.

Mr. Cutbirth said the methodology presented in the paper titled “”Estimating H2S and Methyl Mercaptan Emissions from Wastewater Treatment Systems” was used to estimate releases at the wastewater treatment plant. The paper was coauthored by Georgia-Pacific and NCASI (National Council on Air and Stream Improvement) (Attachment 46).

Hydrogen sulfide is also in the fuel gas stream which is routed to an incinerator which has a heat recovery boiler (Attachment 50).

Ms. Rachel Johnson stated that ambient air levels of hydrogen sulfide at the wastewater treatment plan were low enough that maintenance personnel working on the aerators do not need to wear personal protective equipment (respirators). The wastewater treatment process encompasses the following phases (Figure C-12 of Attachment 38):

Phase 1:	Clarifier De-watering Sludge basin
Phase 2:	Two ash settling basins (in parallel) Surge basin Aeration and stabilization basin Holding basin (Mossy Lake)

The clarified water (output) from Phase 1 is transferred to Phase 2 prior to the settling basins.

In an email dated June 20, 2014, Mr. Cutbirth provided the following information the use of personal protective equipment (PPE) in the wastewater treatment plant area (Attachment 64):

> Employees working in the areas around the wastewater treatment system for extended periods do wear personal H2S monitors. This includes contract employees managing the sludge press, dredging contractors and GP maintenance personnel. We have not observed H2S levels above the OSHA Permissible Exposure Limit for an 8 hour period of 10 ppm and therefore we have never required PPE to work in these areas. Employee monitors are set to alarm at 10 ppm. Employees are directed, per a posted contractor procedure, to move away from the area where these levels are observed.

In an email dated April 8, 2014, Dr. Wakeland requested information on the basis of estimate shown for release of hydrogen sulfide (Attachment 22). Mr. Cutbirth’s reply is shown below (Attachment 22).

> The model used calculated the emissions based on water quality measurements of aqueous sulfide and pH at various points in the system. The model also took into account the characteristics of the wastewater treatment system (types of units and dimensions). No air monitoring was done, as the model is entirely based on aqueous data. Emission factors were not used.
>
> The slides at the first of the presentation (Slides 6 through 10) describe the different types of ways of estimating emissions (as introduced on Slide 5 – Estimation Methods). The Zone Emissions Model (slide 10 and following) then discussed the model used for estimating emissions in this case.
>
> The third slide was meant to convey that the reporting would first take place in July of 2013 for calendar year 2012. The presentation was made in June of 2012 when everyone was in the midst of collecting data, estimating emissions, or determining whatever means they were going to use to report hydrogen sulfide by July of 2013.
>
> M2 code was used because the modeling was based on actual calculations (not emission factors) from various locations in the wastewater treatment system. The E1 Code was used for emission factors used to calculate stack releases.

In an email dated April 9, 2014, Dr. Wakeland requested additional information related to the basis of estimate (Attachment 22). Mr. Cutbirth's reply is shown below (Attachment 22).

> Our selection of the M2 code appears to have been based on the fact that the fugitive H2S emission estimates were calculated, at least in part, by using wastewater monitoring conducted at the mill. The wastewater monitoring consisted of aqueous sulfide measurements that were then used as inputs to the NCASI model to predict potential H2S releases to the atmosphere. Based on your insight and feedback, we will utilize the E2 code in the future.

In his letter dated May 30, 2014, Dr. Morton Wakeland provided the following information (Attachment 51):

> Upon further investigation and research, your (GP's) use of code M2 for fugitive emissions for hydrogen sulfide is acceptable. While "monitoring" is used in the first part of the definition, "or measurement" is used in the second half of the definition. Because you stated Georgia-Pacific periodically sampled (measured) the water to estimate hydrogen sulfide emissions, this code is acceptable.

Chlorine

Chlorine is coincidentally manufactured in the first bleaching stage for the wood pulp. Chlorine was reported by the establishment for the five years 2008 to 2012.

The 2008 to 2012 air releases and treatment of chlorine shown on the Form R's are compared below:

CHLORINE RELEASES AND TREATMENT BY TYPE

Form R line number	2008 releases, pounds	2009 releases, pounds	2010 releases, rounds	2011 releases, pounds	2012 releases, pounds
5.1, fugitive air emissions	5	5	5	5	5
5.2, stack air emissions	2,136	1,850	2,087	1,864 **Note 1**	0 **Note 2**
7A.1d, scrubber efficiency				>50% but <95%	>99.9999%
8.6, treated onsite	12,346	10,484	11,829	10,564	13,144

Note 1: A NCASI factor was used to calculate emissions.

Note 2: A stack test dated 9-21-2011 was used to calculate emissions.

The stack air releases of chlorine from the first bleaching stage are processed through the bleach plant scrubber.

Chlorine releases for the Georgia-Pacific complex are shown below:

CHLORINE RELEASES FOR THE THREE ESTABLISHMENTS

Establishment	2008 releases, pounds	2009 releases, pounds	2010 releases, pounds	2011 releases, pounds	2012 releases. pounds
Paper and Pulp	5	1,959	2,092	1,869	5
Chemicals	520	240	300	250	150
Plywood/Stud Mill	NA	NA	NA	NA	Mill idled
TOTAL	**525**	**2,199**	**2,392**	**2,119**	**155**

Chlorine is otherwise used for disinfecting process water which is supplied to all three establishments. Chlorine is also used to disinfect well water for potable water use at the

Paper Operations. There are no releases in chlorination process. The facility uses one ton cylinders of chlorine for the process.

Chlorine Dioxide

Chlorine dioxide is used in the first bleaching stage to bleach the kraft pulp to a white pulp.

Chlorine dioxide is manufactured onsite using the following chemicals:

Sulfuric acid	Methanol
Sodium chlorate	Hydrogen peroxide

The 2008 to 2012 air releases and treatment of chlorine dioxide shown on the Form R's are compared below:

CHLORINE DIOXIDE RELEASES AND TREATMENT BY TYPE

Form R line number	2008 releases, pounds	2009 releases, pounds	2010 releases, pounds	2011 releases, pounds	2012 releases, pounds
5.1, fugitive air emissions	5	5	5	5	5
5.2, stack air emissions	3,329	3,110	3,170	3,194 **Note 1**	0 **Note 2**
7A.1d, scrubber efficiency	>99% but <99.99%	>99% but <99.99%	>99% but <99.99%	>99% but <99.99%	>99.9999%
8.6, treated onsite	329,585	307,867	313,852	316,174	313,963

Note 1: A NCASI factor was used to calculate emissions.

Note 2: A stack test dated 9-21-2011 was used to calculate emissions.

In an email dated June 10, 2014, Mr. Cutbirth was asked the following question (Attachment 31):

> The 2012 Form R for chlorine dioxide indicates 0 (zero) stack emissions. It was mentioned at the inspection that a September 21, 2011, stack test was used to determine this value. What was the detection limit for chlorine dioxide in this test?

In an email dated June 20, 2014, Mr. Cutbirth replied as follows (Attachment 64):

> The method utilized to determine CL and CLO2 concentrations is a titration using a color change indicator; NCASI Method TI-520. Method TI-520 does not depict a minimum detection level as it is wet chemistry.

The stack air releases from chlorine dioxide manufacturing are processed through the bleach plant scrubber.

In an email dated April 7, 2014, Mr. Cutbirth was asked to provide additional information on the 2012 usage of chlorine dioxide (CBI Folder 2, tab 12). The reason for the request was that the value shown in the spread sheet for the amount otherwise used does not equal the amount manufactured.

In an email dated April 11, 2014, Mr. Cutbirth agreed that the amount of chlorine dioxide manufactured should equal the amount of chlorine dioxide otherwise used (CBI Folder 2, tab 12). Mr. Cutbirth's reply is shown below.

> The "manufactured" amount of… pounds of chlorine dioxide solution was the correct value to use for the threshold determination for reporting year 2012. Mr. Wakeland is correct in that the value of… utilized for "manufactured" should have also been the value for "otherwise used". Notwithstanding this oversight, we believe the "release" value originally reported remains accurate.

Cresol

The 2008 to 2012 air releases and treatment of cresol are compared below:

RELEASES AND TREATMENT OF CRESOL BY TYPE

Form R line number	2008 releases, pounds	2009 releases, pounds	2010 releases, pounds	2011 releases, pounds	2012 releases, pounds
5.1, fugitive air emissions	6	5	5	5	4
5.2, stack air emissions	57,511	55,592	56,428	54,672 **Note 1**	1,625 **Note 2**
7A.1b, waste treatment method **Note 3**	H040	H040 H123 H081	H040	H040	H040
7A.1d, treatment efficiency	>99% but <99.99%	>99% but <99.99%	>99% but <99.99%	>99% but <99.99%	>99% but <99.99
8.6, treated on site	NA **Note 4**	NA **Note 4**	NA **Note 4**	NA **Note 4**	NA **Note 4**

Note 1: Emissions were calculated using a NCASI factor.

Note 2: Emissions were calculated using a **new NCASI factor**.

Note 3: H040, incineration – thermal destruction other than use as a fuel
H123, settling or clarification
H081, biological treatment with or without precipitation

Note 4: Since a gas stream was sent to an incinerator there should be a value shown in line 8.6.

The inspector requested a copy of the old and the new NCASI factors. The facility is to provide the factors by April 9th.

The facility replied as follows (Attachment 41):

> As set forth in the TRI calculation spreadsheets we provided to you, Crossett Paper relies on NCASI-derived emission factors to measure releases of Creosol. For reporting years 2008 -2010 the NCASI guidance on Creosol emissions suggested using a median emission factor of < 5.0E-02 lbs/ton black liquor solids for the recovery furnace (referred to as a Recovery Furnace, NDCE). That emission factor was updated in the 2010 version of the NCASI guidance and was reported as "—". NCASI guidance provides that this symbol should be treated as an emission factor of 0.0E-0, which is the approach Crossett Paper followed in TRI reporting years 2011 and 2012 for this particular source.
>
> It would appear the Crossett Paper's failure to include any amounts in line 8.6 for treatment on-site was an oversight on our part, as the underlying calculation spreadsheets do estimate the amount of Cresol that was treated on-site.

Lead and Lead Compounds

Lead and/or lead compounds are found in the following:

Wood logs	Wood chips	TDF (tire derived fuel)
Hog fuel		Oil (used to start recovery boiler)

The 2008 to 2012 releases and treatment of lead and lead compounds shown on the Form R's are compared below:

LEAD AND LEAD COMPOUNDS RELEASES AND TRETMENT BY TYPE

Form R line number	2008 releases, pounds	2009 releases, pounds	2010 releases, pounds	2011 releases, pounds	2012 releases, pounds
5.1, fugitive air emissions	NA	NA	NA	NA	NA
5.2, stack air emissions	137	172	161	144	183
5.3, discharges to water	216	197	193	179	254
5.5, land onsite	186 12,241	322 10,194	483 11,219	595 9,452	909 848 **Note 1**
7A.1b, waste treatment method **Note 2**	H123 H082	H123 H082	H123 H082	H123 H082	H123 H082
7A.1d, treatment efficiency	>50% but <95%	>50% but <95%	>50% but <95%	>50% but <95%	>50% but <95%
8.6, treated onsite	NA	NA	NA	NA	NA

Note 1: New NCASI factors were used for 2012 reporting.

Note 2: H123, settling or clarification
H082, adsorption

The facility was requested to provide the old and new NCASI factors. The information is to be provided by April 9th.

In an email dated April 7, 2014, the facility replied as follows (Attachment 41):

> The decrease in reported releases of Lead Compounds from RY2011 to RY2012 was primarily attributable to a change from the use of the *mean* value of the NCASI data set for the concentration of lead in various types of wood fuel to the use of the *median* value.
>
> In RY2012, Crossett Paper also changed the factor used to measure Lead Compound discharges to water – the facility switched from using a NCASI factor to using a factor based on facility-specific analytical data. This switch caused a slight increase in the value of Lead Compound discharges to water.

The following additional information was shown on the 2012 Form R:

Form R line number	Description
8.10	Source Reduction Activities: W19 – other changes in operating practices
8.11	Additional Information: W19 – mill wide effort to reduce process water use

For both line 8.10 and 8.11 above, at the time of the inspection, the Staff was not able to explain how the above activities affected the reduction from 2011 to 2012 of the fugitive air, stack air and water releases. The Staff said that they would investigate and reply by April 9th.

In an email dated April 7, 2014, Mr. Cutbirth was asked to provide additional information on the 2012 usage of lead and lead compounds (CBI Folder 2, TAB 13).

In an email dated April 7, 2014, the facility replied as follows (Attachment 41):

> The references to "other changes in operating practices" and "mill-wide effort to reduce process water use" were included in Lines 8.10 and 8.11, respectively, to account for the concerted effort at Crossett Paper to reduce water use. This effort resulted in a decrease in the volume of water discharged to the Ouachita River. Because the volume of water discharged from the mill is one of the inputs into Crossett Paper's calculations of Lead Compound discharges to water, the mill's overall reduction in water use decreased the corresponding Lead Compound discharges to water. It should be noted, however, that the decrease in Lead Compounds discharges due to water use reductions was offset by the facility's transition to the use of a new factor based on facility-specific analytical data discussed above.

In an email dated April 22, 2014, Mr. Cutbirth was asked to clarify the wastewater treatment of lead and lead compounds (Attachment 28). In an email dated April 25, 2014, Mr. Cutbirth provided the following answers (Attachment 28):

- As depicted in Figure C-12, Crossett Paper's wastewater treatment system receives some solids in the form of paper making residuals and boiler ash. Some portion of the lead compounds in the incoming wastewater streams attach to these solid materials and settle out prior to reaching the treatment system's permitted outfall. This adsorption/settling of lead compounds has been confirmed through comparative testing performed by NCASI of wastewater streams entering and exiting wastewater treatment systems. The adsorption/settling of lead compounds is accounted for by reference to H082 (*adsorption)* and H123 (*settling or clarification*) in Section 7A.1b of the Form R.

On the Form R's for lead compounds H123, settling or clarification, and H082, adsorption, are shown as wastewater treatment codes. Line 8.6, treated onsite, is shown as NA. Mr. Cutbirth replied as follows (Attachment 28).

- We think NA is the appropriate entry for Section 8.6 for Lead Compounds. Section 8.6 refers to treatment on-site, which EPA has defined in its Form R instructions as destruction. Settling or adsorption of lead compounds does not result in the destruction of the parent metal, and thus we believe NA is the appropriate entry in Section 8.6. That approach is endorsed in EPA's Form R instructions (Jan. 2014 version, page 67), which state that "for metals and metal category compounds, you should enter NA in Sections 8.2, 8.3, 8.6 and 8.7, as treatment and combustion for energy recovery generally are not applicable waste management methods for metals and metal compounds." Any amount of lead compounds that is subject to adsorption/settling in our treatment system (as referenced in Section 7A.1b) is accounted for in Sections 8.1a or 8.1b, not
- Section 8.6."

Ethylene Glycol

Ethylene glycol was not reported for reporting year 2009. Ethylene glycol is otherwise used at the establishment.

The total of the 2009 usage of ethylene glycol at the three establishments was below the 10,000 pound otherwise use threshold (CBI Folder 2, tab 3).

For 2008, 2010 and 2011 ethylene glycol was reported by all three establishments. For 2012 ethylene glycol was reported by the Pulp and Paper Operations and the Chemical Operations.

Nitrate Compounds

Nitrate compounds are coincidentally manufactured in the wastewater treatment plant.

The 2011 and 2012 releases of nitrate compounds are shown below. Prior to reporting year 2011 nitrate compounds were not reported.

NITRATE COMPOUND RELEASES`

Form R line number	2008 to 2010 releases, pounds	2011 releases, pounds	2012 releases, pounds
5.3, discharges to water onsite	Chemical not reported	55,852	62,403

The facility agreed to provide documentation on why nitrate compounds were not reported from 2008 to 2011. The documentation is to be provided by April 9th.

The facility replied as follows (Attachment 41).

> Attached please find excerpts from a study of the facility's wastewater treatment system, referred to as the Parsons Report, Event 2 – Conventional Pollutant Analysis issued by EPA and dated October 18, 2005. The Parsons Report indicated a nitrate reading at Mossy Lake of <0.2 mg/l, which represents a non-detect. Mossy Lake is directly downstream of Outfall 001 and prior to our discharge to the Ouachita River. This non-detect value supports the non-reporting of Nitrate Compounds for RY2008-RY2010. Crossett Paper obtained additional monitoring data in late 2010/early 2011. This data should have been utilized in the original RY2011 TRI report but was inadvertently overlooked. A new Form R for RY2011 nitrate compounds was submitted on 6/24/2013.

A copy of the Parsons Report, Event1 to 4 – Conventional Pollutant Analysis issued by the EPA and dated October 18, 2005, is included in CBI Folder 2, tab 9.

The following additional information was shown on the 2012 Form R:

Form R line number	Description
8.10	Source Reduction Activities: W19 – other changes in operating practices
8.11	Additional Information: W19 – mill wide effort to reduce process water use

For both line 8.10 and 8.11 above, at the time of the inspection, the Staff was not able to explain how the above activities affected the reduction from 2011 to 2012 of the fugitive air, stack air and water releases. The Staff said that they would investigate and reply by April 9th.

The facility replied as follows (Attachment 41):

> Similar to Lead Compounds, the references to "other changes in operating practices" and "mill-wide effort to reduce process water use" were included in Lines 8.10 and 8.11, respectively, of the Form R for Nitrate Compounds to account for the concerted effort at Crossett Paper to reduce water use. This effort resulted in a decrease in the volume of water discharged to the Ouachita River. Because the volume of water discharged from the mill is one of the inputs into Crossett Paper's calculations of Nitrate Compound discharges to water, the mill's overall reduction in water use decreased the corresponding Lead Compound discharges to water.

Sulfuric Acid Aerosols

The facility last reported sulfuric acid aerosols in 2008. The usage of sulfuric acid aerosols for the three establishments in 2008 to 2011 and for the two establishments in 2012 was below threshold (CBI Folder 2, Attachment 1). The facility reported sulfuric acid aerosols for 2008 even though the usage was below the 25,000 pound threshold.

The sulfuric acid aerosols are a result of burning fuel oil to startup the recovery boiler. The aerosols are coincidentally manufactured in the stack after the gases pass through an electrostatic precipitator.

An analysis of the manufacture of sulfuric acid aerosols is shown in the Confidential Business Information as CBI Folder 2, Attachment 1. There was an order of magnitude decrease in sulfuric acid aerosols from 2006 to 2012.

Acetaldehyde

The chemical dictionary information on acetaldehyde is shown in Attachment 60

The 2008 to 2012 releases and treatment of acetaldehyde shown on the Form R's are compared below:

ACETALDEHYDE RELEASES AND TREATMENT BY TYPE

Form R line number	2008 releases, pounds	2009 releases, pounds	2010 releases, pounds	2011 releases, pounds	2012 releases, pounds
5.1, fugitive air emissions	60,274	56,817	58,059	35,768	1,220
5.2, stack air emissions	30,749	30,175	28,993	28,574	15,630
5.3, discharges to water	7,960	7,503	7,806	7,997	286
5.5, land onsite	35	45	41	38	11
7A.1b, waste treatment method **Note 1**	U01 U02 H040 H123 H081	U01 U02 H040 H123 H081	U01 U02 H040 H123 H081	U01 U02 H040 H123 H081	U01 U02 H040 H123 H081
8.1b, releases on site	99,018	94,540	94,899	72,377	17,147
8.2 energy recovery onsite	69,840	65,938	67,333	68,994	67,322
8.6, treated onsite	78,150	73,665	92,277	100,670	72,291

Note 1: U01, industrial kiln
U02, industrial boiler
H040, incineration – thermal destruction other than use as a fuel
H123, settling or clarification
H081, biological treatment with or without precipitation

The following additional information was shown on the 2012 Form R:

Form R line number	Description
8.10	Source Reduction Activities: W19 – other changes in operating practices
8.11	Additional Information: W19 – mill wide effort to reduce process water use

At the time of the inspection the Staff was not able to explain how the above activities affected the reduction from 2011 to 2012 of the fugitive air, stack air and water releases. The Staff said that they would investigate and reply by April 9th.

The facility replied as follows (Attachment 41):

> It appears the entries in Lines 8.10 and 8.11 of the RY2012 Form R for Acetaldehyde are incorrect, and likely resulted from a carryover of information from a Form R for another chemical. The correct code that should have been entered in Line 8.10 is W13 – Improved maintenance scheduling, record keeping or procedures. The RY2011 Form R for Acetaldehyde includes this correct code. That code is referenced to account for Crossett Paper's use of facility-specific analytical data for reporting release values.

In an email dated April 16, 2014, Mr. Cutbirth was asked to clarify the 2012 Form R reporting of acetaldehyde (CBI Folder 2, Attachment 11). Mr. Cutbirth proved the following comments in his email of April 25, 2014, (CBI Folder 2, tab 11).

> The disparity in the total amount of Acetaldehyde manufactured in our original RY2012 calculations versus the total amount of Acetaldehyde captured in Section 8 of our RY2012 Form R can be explained by our mixing and matching of factors used to calculate the fate of Acetaldehyde entering the mill's wastewater treatment system (WWTS). In our original calculations, we used the value 1,220 lbs for the amount of Acetaldehyde volatized in our WWTS, as that value was based on the best information we had available at the time (facility-specific modeling). In those same calculations, we used NCASI factors to estimate the amount biodegraded and discharged in the effluent. The total of all three values was less than the total amount of Acetaldehyde entering our WWTS, and thus explains the "missing" volume in Section 8. In the course of researching your question, we have discovered several other improvements that could be made to the calculation spreadsheet for RY2012 for Acetaldehyde, and thus are now submitting a revised calculation for your review. To address the issue raised in

your question, these revised calculations still use the 1,220 lbs value as the amount of Acetaldehyde volatized from the WWTS, but we now use an discharge amount that is based on one-half the detection limit from our outfall sampling (Acetaldehyde is non-detect in our sampling) in place of the NCASI factor. Lastly, to calculate the amount biodegraded in our WWTS system, we take the total amount of Acetaldehyde entering the WWTS and subtract the amount volatized and the amount discharged (again, rather than using the NCASI factor). **These revisions ensure that our total amount manufactured/processed/otherwise** used will be equal to the total amount in Section 8 of the Form R.

Ammonia

Descriptive information on anhydrous ammonia is shown in Attachment 52.

The following table summarizes the onsite releases and onsite treatment of ammonia shown on the Form R's from 2008 to 2012.

AMMONIA RELEASES AND TREATMENT BY TYPE

Form R line number	2008 pounds	2009 pounds	2010 pounds	2011 pounds	2012 pounds
5.1, fugitive air	500	500	500	500	500
5.2, stack air	132,018	133,042	130,742	123,090	128,189
5.3 discharge to water	1073	1070	1070	941	870
7A, onsite treatment methods **Note 1**	H040 H123 H081	H040 H123 H081	H040 H123 H081	H040 H123 H081	H040 H123 H081
8.6, treated onsite	NA **Note 2**	NA	NA	NA	NA

Note 1: H040, incineration – thermal destruction other than use as a fuel
H123, settling or clarification
H081, biological treatment with or without precipitation

Note 2: With onsite treatment efficiencies greater than 50 percent there should be a value in line 8.6 treated onsite.

The following additional information was shown on the 2012 Form R:

Form R line number	Description
8.10	Source Reduction Activities: W19 – other changes in operating practices
8.11	Additional Information: W19 – mill wide effort to reduce process water use

For both line 8.10 and 8.11 above, at the time of the inspection, the Staff was not able to explain how the above activities affected the 2012 reporting of the fugitive air, stack air and water releases. The Staff said that they would investigate and reply by April 9th.

The facility replied as follows (Attachment 41):

> It would appear the Crossett Paper's failure to include any amounts in line 8.6 for treatment on-site was an oversight on our part, as the underlying calculation spreadsheets do estimate the amount of Ammonia that was treated on-site.
>
> Similar to Lead Compounds and Nitrate Compounds, the references to "other changes in operating practices" and "mill-wide effort to reduce process water use" were included in Lines 8.10 and 8.11, respectively, of the Form R for Ammonia to account for the concerted effort at Crossett Paper to reduce water use. This effort resulted in a decrease in the volume of water discharged to the Ouachita River. Because the volume of water discharged from the mill is one of the inputs into Crossett Paper's calculations of Nitrate Compound discharges to water, the mill's overall reduction in water use decreased the corresponding Lead Compound discharges to water.

Barium Compounds

The 2008 to 2012 releases and treatment of barium compounds is shown in the table below:

BARIUM COMPOUNDS RELEASES AND TREATMENT BY TYPE

Form R line number	2008 releases, pounds	2009 releases, pounds	2010 releases, pounds	2011 releases, pounds	2012, releases pounds
5.1, fugitive air	NA	NA	NA	NA	NA
5.2, stack air	244	243	229	210	258
5.3 discharge to water	14,906	13,591	13,351	12,355	33,602
5.5, land onsite	721 84,648	1,465 72,608	2,259 78,730	2,810 66,918	4,342 66,573
7A, onsite treatment methods **Note 1**	A03 H123 H082	A03 H123 H082	A03 H123 H082	A03 H123 H082	A03 H123 H082

Note 1: A03, scrubber
H123, settling or clarification
H082, adsorption

During the inspection, and based on incorrect information, the Inspector questioned the accuracy of the 2011 Form R for barium compounds.

The facility replied as follows (Attachment 41):

> The Form R for Barium Compounds available on TRIME web appears to be correct and matches the file copy we have on-site. During your visit, we discussed this same issue, and it appeared that you may have been referring to a Barium Compounds Form R for a different facility.

The facility was in fact correct. The Inspector had referred to a Form R for another chemical (Attachment 21).

Benzo(g,h,i)perylene

The total on site releases of benzo(g,h,i)perylene ranged from a high of 25 pounds in 2008 to a low of 20 pounds in 2012. The threshold for benzo(g,h,i)perylene is 10 pounds.

The Pulp and Paper Operations reported benzo(g,h,i)perylene for each of the years 2008 to 2012.

U. OTHER CHEMICALS AND ITEMS OF INTEREST

Boiler Ash

The facility has two boilers that generate boiler ash. Both burn chipped bark and/or hog fuel. Hog fuel is wood chips or shavings, residue from sawmills, etc. The name, hog fuel, comes from the machine used to create hog fuel, a hammer hog.

Part of the boiler ash is collected at the boilers and taken to the onsite land fill. The remainder is sluiced to the wastewater treatment plant. Sluicing consists of mixing the ash with water and transferring it to the wastewater treatment plant.

At the wastewater treatment plant the boiler ash settles out in two ash settling basins and is transferred to the sludge basin (an onsite land fill).

The boiler ash, collected at the boilers, is as used a cover material at the onsite land fill. No boiler ash is sold or given away. The cost of transporting the boiler ash to markets exceeds the value of the ash and the most economical disposal is to use it as landfill cover.

A TCLP (t-clip) analysis of the boiler ash is shown in Attachment 53. TCLP (Toxicity Characteristic Leaching Procedure) is a chemical analysis employed as an analytical method to simulate leaching through a landfill (Attachment 54)

Stack Descriptions

A listing of the facility's stacks and emission points is shown in CBI Folder 2, tab 10.

Benzene, CAS 71-43-2, de minimis = 0.1%

The manufacture usage of benzene was below threshold for reporting years 2008 to 2012. An analysis of the manufacture use of benzene is shown in the
CBI Folder 2, Attachment 2.

Power boilers and electric generation

The facility has two waste wood (hog fuel) fired boilers and two backup natural gas fired boilers (Figure C-11, steam generation, Attachment 37).

Part of the steam from the boilers is routed through two steam turbines to generate electricity. Together with the steam turbine on the recovery boiler the facility generates approximately 70 percent of the facility's electricity needs.

The facility also has the capacity and ability to provide steam to the Chemical Operations and/or the Plywood/Stud Mill during down time on their boilers.

In an email dated April 11, 2014, Mr. Cutbirth was asked to provide clarifying information on the wood piles for the two hog fuel fired boilers shown on the process flow diagram (Attachment 37, Figure C-11). Mr. Cutbirth's reply is shown below:

> You are correct, 9A and 10A Boilers each have a hog fuel storage pile (Figure C-11 calls these two storage areas wood waste piles) associated with each boiler. The 9A bark pile is located northwest of 9A Boiler and the 10A bark pile is located just east of 10A Boiler. I see that the Facility Map calls 9A Boiler bark pile "bark storage" and the 10A Boiler bark pile is called "wood waste pile". All of these names are synonymous with "wood waste".

Recovery boiler and electric generation

The recovery boiler is fueled with concentrated black liquor and generates steam to run a steam turbine to generate electricity (Figure C-4, liquor recovery, in Attachment 37).

The boiler also produces smelt which contains sodium sulfide which is mixed with process water to form green liquor. Green liquor is then reacted with lime to generate white liquor.

For startup the recovery boiler is fired with oil. TRI chemicals in the oil are taken into consideration for the threshold calculations.

In an email dated March 31, 2014, Mr. Cutbirth provided the following comments related to the recovery boiler (Attachment 10):

> The reference to U03 in the 2012 Form R for hydrogen sulfide contemplates the combustion (for energy recovery and as a form of emissions control) of hydrogen sulfide gases that occurs in the on-site incinerator equipped with waste heat boiler, which is depicted on Figure C-2 of the process flow diagrams. As a back-up to the incinerator, hydrogen sulfide emissions can be routed to the 9A Power Boiler. Both the incinerator and the 9A Boiler Power would fall within the U03 – Industrial Boiler code, as we understand the codes. Hydrogen sulfide gases are not routed to the recovery boiler for combustion.
>
> No, as explained above, hydrogen sulfide should not be an input to the Recovery Boiler.

NAICS codes for Paper operations

The Pulp and Paper Operations reports the following NAICS codes (Attachment 55).

NAICS CODE	PRIMARY	NAICS CODE DESCRIPTION
322110	YES	Pulp Mills
322121	NO	Paper (except Newsprint) Mills
322130	NO	Paperboard Mills

322110: The Pulp and Paper Operations receives both pine and hardwood logs and de-barks them. They then chip the logs and pulp the chips. The pulp is then bleached.

322121: The Pulp and Paper Operations then takes the pulp and converts it into toilet tissue (paper) and paper towel stock. The stock is then made into rolls and packaged.

322130: The Pulp and Paper Operations then takes the pulp and converts it into paperboard (a thicker paper) which is used at another location to manufacture products such as paper plates.

Dr. Wakeland requested additional information from the facility regarding NAICS codes for GP's three establishments (Attachment 19). In an email reply dated April 17, 2014, Mr. Cutbirth stated the following in response to Dr. Wakeland's questions (Attachment 19):

4.5 NAICS Codes

NAICS CODE	PRIMARY	NAICS CODE DESCRIPTION
322110	YES	Pulp Mills
322121	NO	Paper (except Newsprint) Mills
322130	NO	Paperboard Mills

Crossett Paper is an integrated pulp and paper mill that manufactures pulp to make paper towels, tissue and paperboard products. The paper towel and tissue manufacturing operations fall within NAICS code 322121, while the paperboard manufacturing operations fall within NAICS code 322130.

From an accounting perspective, Crossett Paper tracks the finances of its towel & tissue production and paperboard production on separate ledgers at the mill level. That said, many operations and services at the mill are shared among the two product groups, including operations such as the wood yard, pulp production, and utilities along with capability groups such as accounting, EHS, maintenance, HR and mill leadership (i.e., a single Plant Manager oversees operations at the entire Crossett Paper Plant).

Products of Combustion from Motor Vehicles Etc.

In an email dated April 9, 2014, Mr. Cutbirth was asked to determine if the products of combustion from motor vehicles were taken into consideration during the calculations of releases at the Pulp and Paper Operations (Attachment 23).

In an email dated April 21, 2014, Mr. Cutbirth replied to the above question and said that GP Crossett Paper had not included the products of combustion in their release calculations (Attachment 23).

> To respond to your question below, Crossett Paper has not typically accounted for the coincidental manufacture of TRI chemicals via the combustion of fuels by motor vehicles operated at the mill in its EPCRA 313 calculations. For that reason, we have not determined whether accounting for that activity would impact our release calculations. We have reviewed Mr. Wakeland's note to the Crossett Chemical plant, and we continue to believe that the guidance Mr. Wakeland references does not extend to the combustion of fuel products by motor vehicles operated by third parties that deliver materials to Crossett Paper. In any event, we will continue our research to clarify this issue to ensure that we are meeting the applicable regulations in future TRI reports, as we believe neither the rules nor readily available guidance are sufficiently clear on this point.

On April 21, 2014, Mr. Cutbirth's reply was referred to Dr. Wakeland for his reply.

The inclusion of the products of combustion would not only apply to motor vehicles by also other internal combustion engines such as fire pumps and standby electric generators.

A discussion of several emails exchanged between Mr. Randy Roden (Georgia-Pacific Chemicals and the EPA is included in the March 20, 2014, inspection report for Georgia-Pacific Chemicals in Crossett, Arkansas.

Tire Derived Fuel (TDF)

The use of tire derived fuel (TDF) in the two wood fired boilers was discontinued during July 2013. Zinc compounds (zinc oxide) are the most significant TRI chemical in TDF and zinc compounds were included in the threshold calculations.

The threshold calculations indicate that the zinc compounds were manufactured.

Used (waste) Oil

On April 9, 2014, an email was sent to Mr. Cutbirth asking if the boilers at the Pulp and Paper Operations were use to dispose of used oil (Attachment 24).

In his reply to the above question Mr. Cutbirth stated that used oil is collected and burned in the recovery boiler (Attachment 24). His comments are shown below:

> Yes Sir, we burn the used oil we collect and recycle it in the Recovery Boiler. If for some reason the used oil does not meet "used oil specifications" it will not be burned in the Recovery Boiler. We would manifest and dispose of the off-spec used oil through an outside vendor.

Lime Kiln

In an email dated March 31, 2014, Mr. Cutbirth provided information relative to the lime kiln (Attachment 10):

> The reference to U03 in the 2012 Form R for hydrogen sulfide contemplates the combustion (for energy recovery and as a form of emissions control) of hydrogen sulfide gases that occurs in the on-site incinerator equipped with waste heat boiler, which is depicted on Figure C-2 of the process flow diagrams. As a back-up to the incinerator, hydrogen sulfide emissions can be routed to the 9A Power Boiler. Both the incinerator and the 9A Boiler Power would fall within the U03 – Industrial Boiler code, as we understand the codes. Hydrogen sulfide gases are not routed to the recovery boiler for combustion.
>
> The reference to U01 in Section 7.b of the 2012 Form R for hydrogen sulfide appears to be in error. Although Figure C-5 does show non-condensable gases (NCGs) as an input to the lime kiln, NCGs (including hydrogen sulfide) were not burned for energy recovery in the lime kiln within the past 5 years. The piping system that would allow NCGs to be fed to the lime kiln has been blanked and/or removed.
>
> As explained above, no NCGs (including hydrogen sulfide gases) are routed to the lime kiln for incineration. The depiction of such activity in Figure C-5 is out of date. The lime kiln burner is fired with natural gas, although that fuel source is not depicted on Figure C-5. In general, the use of natural gas by equipment other than the power boilers is not depicted on process flow diagrams.

Hog fuel (wood waste) piles

In an email dated April 11, 2014, Mr. Cutbirth was asked to clarify the Saline River Water Plant and what appears to be a single hog fuel (wood waste) pile rather than two (Attachment 26). He was also asked to clarify if the digesters are vented.

In an email dated April 15, 2014, Mr. Cutbirth provided the following reply to the above questions (Attachment 26).

> You are correct, 9A and 10A Boilers each have a hog fuel storage pile (Figure C-

11 calls these two storage areas wood waste piles) associated with each boiler. The 9A bark pile is located northwest of 9A Boiler and the 10A bark pile is located just east of 10A Boiler. I see that the Facility Map calls 9A Boiler bark pile "bark storage" and the 10A Boiler bark pile is called "wood waste pile". All of these names are synonymous with "wood waste".

Non-condensable gases (NCG)

Mr. Cutbirth provided the following information on non-condensable gases:

Upon completion of each cook, the contents of each digester are emptied (blown) to a hardwood or softwood blow tank. The gases exiting the blow tanks are routed to the NCG collection system where the non-condensable portion of these gases is ultimately burned in the Incinerator. Each of the digesters also has a small vent that is directed to the turpentine system. Emissions from this system are combined back with the other digester gases and are routed to the incinerator.

V. MATHEMATICAL PROCEDURES FOR CALCULATIONS

Attachment 59 is a spreadsheet showing "Description of information used in making the Form R threshold determinations.

W. MATHEMATICAL PROCEDURES FOR UTILIZING FORM A's

The establishment did not utilize any Form A's for reporting for the years 2008 to 2012.

X. TIER TWO REPORT

A copy of the 2013 Tier Two Report is included in the inspection folder. The report was reviewed for TRI chemicals used at the facility.

Y. ANNUAL EMISSIONS INVENTORY REPORT

A copy of the 2012 Annual Emissions Inventory Report is included in the inspection folder. The report provides a second source of information on the chemical releases by the facility.

Z. LATITUDE AND LONGITUDE

Source	Latitude	Longitude	Comments
2004 Form R	033° 08' 41" 033.144722	091° 58' 17" 091.971389	(Attachment 58)
Facility Registry System (FRS)	33.141395	-91.97395	(Attachment 3)
Center of Manufacture	33.141395	-91.97395	The Center of Manufacture is equal to the Facility Registry System latitude and longitude readings (Attachment 63)
Inspector			Readings were not taken.

AA. CLOSING CONFERENCE

The Staff was very cooperative throughout the inspection and tour.

The inspection was concluded at approximately 4:45 pm.

Lawrence V. Stranne, P.E.
EPCRA 313 Inspector

Attachments:
1. Plywood/Stud Mill idled production
2. Notification to the State of Arkansas
3. FRS lat and lon
4. Kaiser 3-20-2014 letter
5. GP web site information
6. History from GP web site
7. Information from the 2010 Arkansas Manufacturers Register
8. Environmental Justice Information
9. 2-28-2014 letter, notification of inspection
10. 3-27-2014 request for information on H2S etc.
    3-31-2014 GP reply
    3-31-2014 question on recovery furnace
    3-31-2014 GP reply
11. 3-28-2014 request for miscellaneous information
12. 3-28-2014 request for information on flow chart
    5-20-2014 request for copy of reply
    5-21-2014 GP reply

13. 4-1-2014 request for H2S information
14. 4-1-2014 GP request for copy of the inspection report
15. 4-2-2014 request for information on venting of equipment
    4-3-2014 GP reply
16. None
17. Form R DUNS numbers
18. Request for copies of MSDS's
    4-17-2014 GP reply
19. 4-8-2014 forwarded Wakeland request
20. 4-7-2014 GP reply on CBI
21. 4-7-2014 barium compounds
22. 4-8-2014 request for information on basis of estimate
    4-8-2014 GP reply
    4-9-2014 request for additional information
    4-11-2014 GP reply
23. 4-9-2014 request for information on products of combustion
    4-21-2014 GP reply
24. 4-9-2014 question on used oil
    4-11-2014 GP reply
25. 4-10-2014 questions on H2S
26. 4-11-2014 questions on the facility map
    4-15-2014 GP reply
27. 4-22-2014 request for information on TRS
28. 4-22-2014 question on wastewater flow chart
    4-25-2014 GP reply
29. 5-30-2014 questions on flow chart and black liquor tanks
30. 5-30-2014 request for additional spread sheets for H2S
    5-30-2014 questions of flow charts
31. 6-10-2014 questions on landfill and H2S emissions
32. 6-10-2014 GP provided information for the 6-11-2014 conference call
33. 6-10-2014 GP provided information on H2S and methyl mercaptan releases
34. None
35. 3-19-2014 sign in sheet
36. Map of facility
37. Process flow chart
38. Revised process flow charts
39. EPA RCRA inspection note
40. EPA RCRA inspection report
41. GP reply on wastewater treatment plant acreage
42. Description of the kraft process
43. Nitrate compounds Form R postmark date
44. None
45. Form R reports by the three facilities
46. Report on H2S and methyl mercaptan releases

47. List of pulp mills releasing H2S
48. List of all industries releasing H2S
49. Chemical dictionary and Wikipedia information on H2S
50. 3-31-2014 GP reply on H2S emissions
51. 5-30-2014 threshold and release calculations
52. Chemical dictionary information on anhydrous ammonia
53. 12-6-2012 TCLP test results
54. TLCP description
55. NAICS code information
56. None
57. None
58. Form R lat and lon
59. Threshold determinations
60. Chemical dictionary information for acetaldehyde
61. 3-20-2014 Sarah Ross notes
62. 6-9-2014 conference call on 6-11-2014
63. Center of manufacture lat and lon
64. 6-20-2014 reply to questions during conference call
65. Emails related to revising flow charts
66. Suggested changes to the draft inspection report
67. Request for copy of Attachment 8

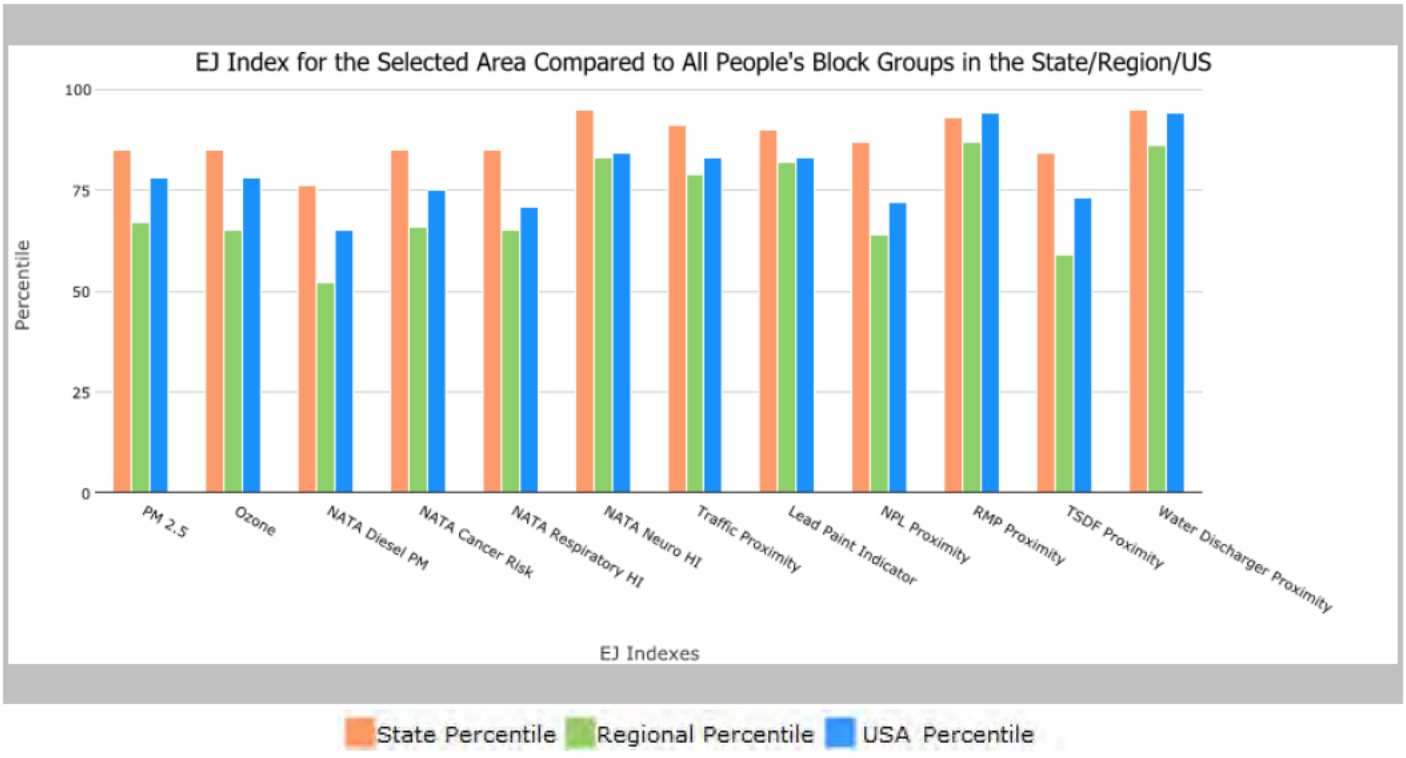
EJSCREEN Report

for Block Group 050039606002, ARKANSAS, EPA Region 6

Approximate Population: 1099

Georgia Pacific Crossett Paper Operations 06-2015-0507

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	85	67	78
EJ Index for Ozone	85	65	78
EJ Index for NATA Diesel PM	76	52	65
EJ Index for NATA Air Toxics Cancer Risk	85	66	75
EJ Index for NATA Respiratory Hazard Index	85	65	71
EJ Index for NATA Neurological Hazard Index	95	83	84
EJ Index for Traffic Proximity and Volume	91	79	83
EJ Index for Lead Paint Indicator	90	82	83
EJ Index for Proximity to NPL sites	87	64	72
EJ Index for Proximity to RMP sites	93	87	94
EJ Index for Proximity to TSDFs	84	59	73
EJ Index for Proximity to Major Direct Dischargers	95	86	94



This report shows environmental, demographic, and EJ indicator values. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJSCREEN Report

for Block Group 050039606002, ARKANSAS, EPA Region 6

Approximate Population: 1099

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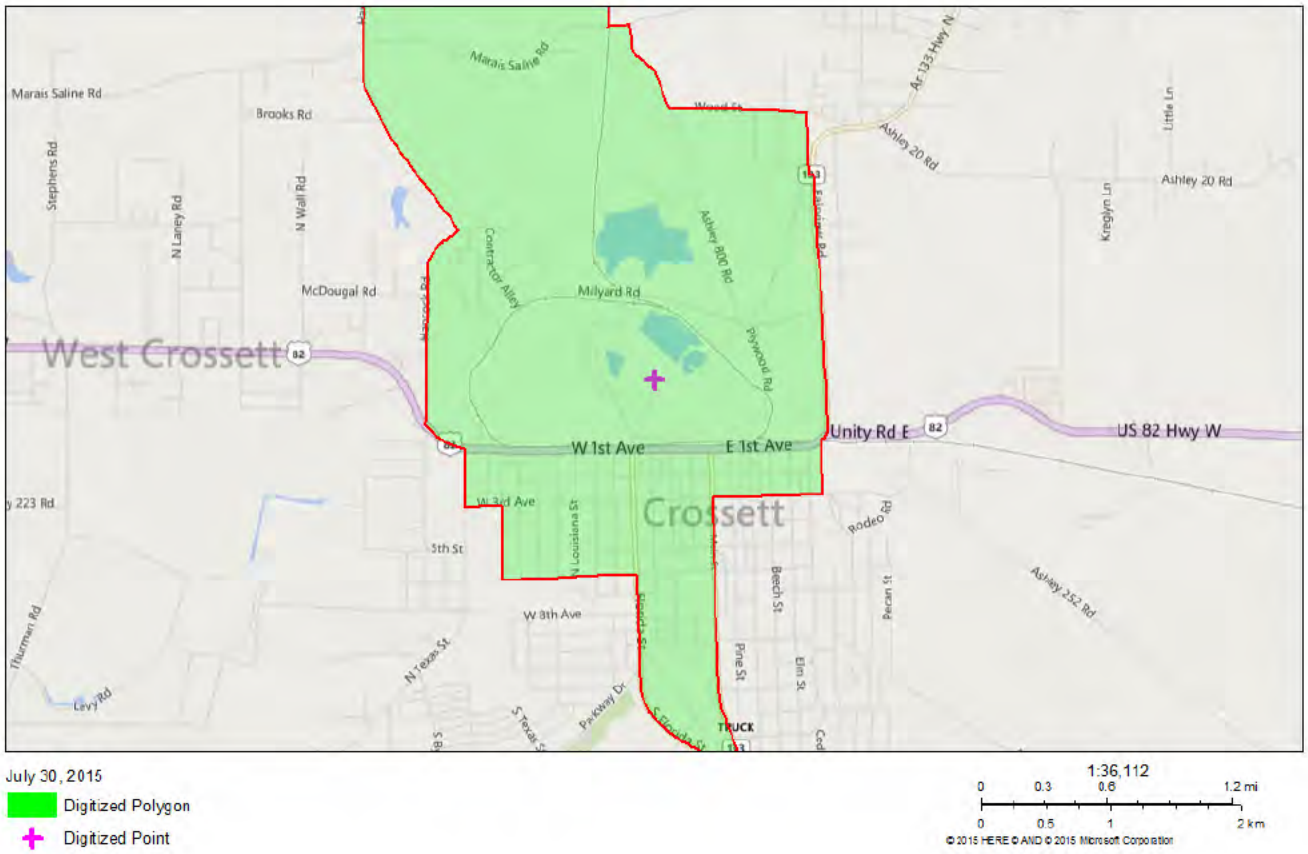

EXHIBIT C

EJSCREEN Report

for Block Group 050039606002, ARKANSAS, EPA Region 6

Approximate Population: 1099

Georgia Pacific Crossett Paper Operations 06-2015-0507

Selected Variables	Raw Data	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	10.1	10.6	22	9.77	56	9.78	54
Ozone (ppb)	45.7	47.4	23	48.6	33	46.1	45
NATA Diesel PM (µg/m^3)*	0.0681	0.245	26	0.733	<50th	0.824	<50th
NATA Cancer Risk (lifetime risk per million)*	40	40	57	42	<50th	49	<50th
NATA Respiratory Hazard Index*	1.1	1.1	61	1.4	<50th	2.3	<50th
NATA Neurological Hazard Index*	0.095	0.038	98	0.043	95-100th	0.063	80-90th
Traffic Proximity and Volume (daily traffic count/distance to road)	100	64	82	81	79	110	74
Lead Paint Indicator (% Pre-1960 Housing)	0.31	0.18	82	0.19	77	0.3	60
NPL Proximity (site count/km distance)	0.023	0.033	66	0.063	39	0.096	27
RMP Proximity (facility count/km distance)	1.3	0.33	94	0.42	92	0.31	95
TSDF Proximity (facility count/km distance)	0.014	0.046	53	0.062	29	0.054	36
Water Discharger Proximity (facility count/km distance)	0.74	0.25	92	0.35	87	0.25	93
Demographic Indicators							
Demographic Index	62%	34%	88	44%	74	35%	84
Minority Population	70%	26%	91	49%	70	36%	80
Low Income Population	55%	42%	74	39%	73	34%	81
Linguistically Isolated Population	4%	2%	85	6%	59	5%	68
Population With Less Than High School Education	21%	17%	68	18%	63	14%	75
Population Under 5 years of age	4%	7%	30	7%	25	7%	32
Population over 64 years of age	24%	14%	91	11%	94	13%	91

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: http://www.epa.gov/ttn/atw/natamain/index.html.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

EXHIBIT C